

# Aircraft Engine Life-Consumption Monitoring for Real-Time Reliability Determination, Phase II

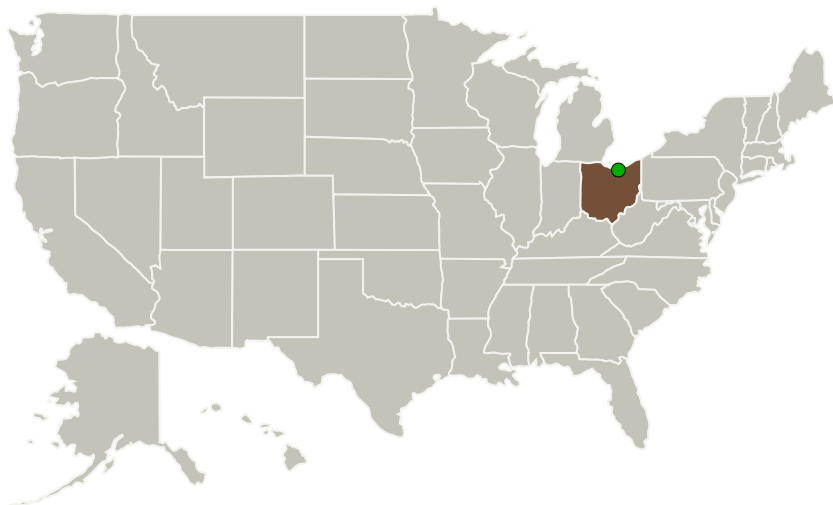
Completed Technology Project (2011 - 2014)



## Project Introduction

The object of this research is to develop an in-service life-monitor system for the prediction of the remaining component and system life of aircraft engines. The embedded system will monitor the engines thrust, exhaust gas temperature, the engine efficiency, the speed and the time of operation of the engine in flight. Based upon this data, the life-estimation analog of the system will calculate the remaining lives of the components of the engine and combine these into a prediction of the remaining life of the engine. The calculations will be based on the statistical life distribution of the engine components and their relationship to load, speed, temperature and time. The monitoring device will be built for use with an operational aircraft engine.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Nastec, Inc.	Lead Organization	Industry	Brook Park, Ohio
 Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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## Primary U.S. Work Locations

Ohio

## Project Transitions

 **June 2011:** Project Start

 **July 2014:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138693>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Nastec, Inc.

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

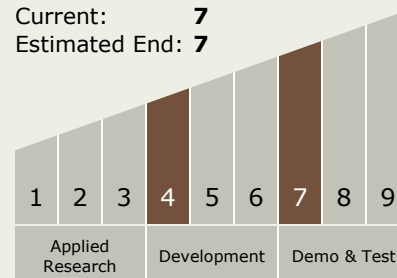
David Zaretsky

## Technology Maturity (TRL)

Start: 4

Current: 7

Estimated End: 7



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## Technology Areas

### Primary:

- TX13 Ground, Test, and Surface Systems
  - └ TX13.2 Test and Qualification
    - └ TX13.2.6 Advanced Life-Cycle Testing Techniques

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System